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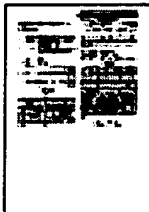
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## US5792851: Human prostaglandin transporter

[View Images \(25 pages\)](#) | [Expand Details](#) |Subscriber: [PDF \(~2380 KB\)](#) | [TIFF \(~1880 KB\)](#)Inventor(s): **Schuster; Victor L.**, New York, NY  
**Lu; Run**, Bronx, NYApplicant(s): **Albert Einstein College of Medicine of Yeshiva University, a Division of Yeshiva University**, Bronx, NYIssued/Filed Dates: **Aug. 11, 1998 / Sept. 3, 1996**Application Number: **US1996000706936**IPC Class: **C07H 021/04; C07K 016/28; C12N 015/12;**Class: **536/023.5; 435/069.1; 435/172.3; 435/320.1; 530/350; 530/388.2; 530/389.1; 530/391.3;**Field of Search: **536/23.5 530/350,388.2,388.22,389.1,391.3 435/320.1,172.3,69.1**Government Info: **STATEMENT OF GOVERNMENT INTEREST**

This invention was made with government support under NIH Grant No. RO1-DK-49688. As such, the government has certain rights in this invention.

**Abstract:** The present invention provides a purified and isolated nucleic acid encoding human prostaglandin transporter (hPGT). The present invention also provides a vector comprising a nucleic acid encoding human prostaglandin transporter (hPGT), a cell stably transformed with this vector, as well as a method for producing a recombinant, human prostaglandin transporter (hPGT). The present invention also provides a purified and isolated human prostaglandin transporter (hPGT), and an antibody immunoreactive with this protein. The present invention further provides a method for evaluating the uptake of a selected prostaglandin by cells expressing nucleic acid encoding human prostaglandin transporter (hPGT). Finally, the present invention provides a vector and an embryonic stem cell each of which comprises nucleic acid encoding a mutant human prostaglandin transporter (hPGT), a non-human transgenic animal whose germ and somatic cells contain nucleic acid encoding a mutant human prostaglandin transporter (hPGT) introduced into said animal, or an ancestor thereof, at an embryonic stage, as well as a method for producing the non-human, transgenic animal.

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Primary/Assistant  
Examiners: **Saunders; David; Vander Vegt; F. Pierre**  
U.S. References: **none**

(No patents reference this one)

MITCH,  
see p. 2.  
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(Jim upaid)

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**First Claim: Show all 22 claims**

What is claimed is:

1. A purified and isolated nucleic acid encoding human prostaglandin transporter (hPGT).

**Background/Summary:****BACKGROUND OF THE INVENTION**

Prostaglandins (PGs) play ubiquitous and vital pathophysiological and therapeutic roles in human health and various disease states, such as glaucoma; pregnancy, labor, delivery, and abortion; gastric protection and peptic ulcer formation; intestinal fluid secretion; liver protection and damage; airway resistance and asthma; blood pressure control; and modulation of inflammatory cells (1-15).

As charged organic anions at physiological pH (16, 17), PGs traverse biological membranes poorly (18). Accordingly, PG transport is carrier-mediated in many diverse tissues, including the lung (19-22), choroid plexus (23-28), liver (29), anterior chamber of the eye (23-25, 30), vagina and uterus (31-33), and placenta (34, 35). The rat "PGT" cDNA has been cloned and is the first cloned carrier known to catalyze the transport of PGE and PGF<sub>2</sub>.alpha. (36). Prior to the present invention, however, the cDNA encoding the human prostaglandin transporter (hPGT) had not been identified.

The present invention is based upon the discovery of the human prostaglandin transporter (hPGT) cDNA. The discovery of the human prostaglandin transporter (hPGT) cDNA will permit the evaluation of various prostaglandin analogues to determine their biological half-life, and potentially, the design of prostaglandin analogues that are not transported by human prostaglandin transporter (hPGT). Such analogues might be cleared from the body more slowly than those that are transported by human prostaglandin transporter (hPGT), resulting in increased biological half-life of these drugs.

**SUMMARY OF THE INVENTION**

The present invention provides a purified and isolated nucleic acid encoding human prostaglandin transporter (hPGT). The present invention also provides a vector comprising a nucleic acid encoding human prostaglandin transporter (hPGT), a cell stably transformed with this vector, as well as a method for producing a recombinant, human prostaglandin transporter (hPGT).

In addition, the present invention provides a purified and isolated human prostaglandin transporter (hPGT), and an antibody immunoreactive with this protein. The present invention also provides a method for evaluating the uptake of a selected prostaglandin by cells expressing nucleic acid encoding human prostaglandin transporter (hPGT) comprising the steps of: (a) expressing nucleic acid encoding human prostaglandin transporter (hPGT) in cells; (b) introducing the prostaglandin to the cells; and (c) evaluating the uptake of the prostaglandin by the cells.

Finally, the present invention provides a vector and an embryonic stem cell each of which comprises nucleic acid encoding a mutant human prostaglandin transporter (hPGT), a non-human transgenic animal whose germ and somatic cells contain nucleic acid encoding a mutant human prostaglandin transporter (hPGT) introduced into said animal, or an ancestor thereof, at an embryonic stage, as well as a method for producing the non-human, transgenic animal.

Additional objects of the invention will be apparent from the description which follows.

Drawing Show drawing descriptions  
Descriptions: Show description of preferred embodiments  
Description of Preferred Embodiments:

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Foreign References: none

(No patents reference this one)

## Other References:

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- Johnstone, A et al, Immunology in Practice, Johnstone and Thorpe, eds. Blackwell Scientific Publications, Oxford, UK., 1987.



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